

Northern Powerhouse – Opportunities in Life Sciences

PITCH DECK

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UK Trade
& Investment



Overview: The Northern Life Science Powerhouse

Five reasons why you should invest in the Northern Powerhouse.

1

Overview: A world region of over 15 million people with an economy of over £300 billion - the 10th largest economy in the EU were it a country. The Northern Powerhouse comprises the North West, Yorkshire and Humber and the North East and includes five of the UK's top ten major urban areas.

2

Ecosystem: Dedicated support from Northern organisations that provide free, independent advice and support for companies across the whole innovation process, from site selection to R&D partnerships and market access. The Northern Powerhouse's leading academic and clinical institutions are open for business.

3

High quality clinical research: The UK is strong in experimental medicine and clinical research with a conducive regulatory environment and world-class trials infrastructure. 30% of all EU clinical trials are run in the UK. 30% of all England's trials are conducted in the Northern Powerhouse's leading NHS Trusts.

4

World-leading science and infrastructure, low set-up and operating costs: The Northern Powerhouse has purpose built facilities for international investors to locate in close proximity to leading academic and clinical institutions and industrial clusters. Set-up is fast and cost-effective with competitive labor costs..

5

Ease of doing business: 20% UK Corporation Tax falling to 17% by 2020, plus 10% Patent Box and R&D tax incentives. Nearly 5,000 life sciences companies operate in the UK, 1,000 in the North, with a highly skilled workforce combined with regional fiscal incentives to support inward investment.

Opportunity: Invest, grow and scale

Investor Benefits

A truly connected and integrated digital ecosystem

- **Complete Ecosystem:** Industry, academia, clinical & health sciences are integrated so that R&D elements combine seamlessly with implementation elements to provide an end-to-end service across the region through to commissioning and market uptake. Underpinned by a drive towards 21st Century digital health care models.
- **Thriving business community:** The Northern Powerhouse is home to **1,000 life and health science businesses**, supporting **~38,000 high skilled jobs**. These companies **contribute £10.8 billion to the UK economy each year**. Of these organisations around **97% are SMEs** providing a strong supply chain for new investors to the region.

Clinical research and informatics

- **Recruitment:** A large, fifteen million, diverse and stable patient population that encompasses most major diseases/health states for study. The North includes the **top two NHS Trusts Nationally for clinical trials** and **three of the top ten**. As a region the North delivers more clinical trials than Oxford, Cambridge and London combined.
- **Informatics:** A world class infrastructure which enables everything from **trial feasibility and patient recruitment to real word studies** of health service utilisation and access to anonymised data to support new service and market development. The North's 15 million population is a perfect test-bed for wider NHS uptake.

Adoption and uptake of innovation

- **Supported adoption and uptake:** An existing and **'joined up' network of gateway organisations** such as the N8, NHSA and AHSNs and NICE that work with business to help them bring innovative new products to patients.

Sites and facilities

- **Leading investment destinations:** The Northern Powerhouse has a wealth of wet-lab sites and premises with capacity that can accommodate large or small companies and provide a managed path for growth.
- **Connected:** These sites provide access to **world class facilities** such as Alderley Park and are also intrinsically connected with the clinical academic network and physically well connected nationally and internationally.

Ecosystem: Access A Dynamic Innovation Pathway

A truly connected and integrated ecosystem: All elements of the ecosystem – industry, academia and clinical/health sciences are integrated so that the R&D elements combine seamlessly with the implementation elements to provide an end-to-end service across the region.



Dedicated single points of contact

- The Northern Powerhouse has established a handful of single points of entry to the innovation pathway that work directly with industry to provide a managed engagement with the ecosystem:
 - **N8 Research Partnership** – Supports the establishment of multi-partner bioeconomy and preclinical research programmes.
 - **Northern Health Science Alliance** – Supports the establishment of multi-centre clinical research and development projects.
 - **Academic Health Science Networks (AHSN)** enable companies to grow and create jobs by helping the NHS and industry engage more productively, focused on proven innovations that meet defined local needs.
 - **Local Enterprise Partnerships (LEPs)** work with companies to determine local economic priorities driving economic growth and job creation.

Four Northern Academic Health Science Networks



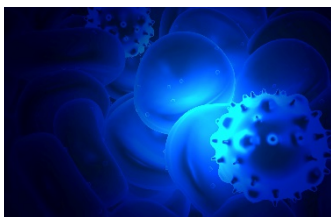
Ecosystem: Life Science Manufacturing

Biotechnology

- Academic research excellence includes molecular and structural biology, scale-up expertise, and analytical capabilities, along with leadership of national biotechnology networks.
- International businesses already innovating and thriving in the region include **Unilever, CRODA, Nestle, Quorn, Parker domnick-hunter, Davy Process Technology, ThermoFisher, Millipore, Intertek, Life Technologies, & Waters.**

Pharmaceuticals Manufacturing

- **AstraZeneca's** largest global manufacturing site, £120m of investment recently in high-technology manufacturing, contributes 1% of the UK's total value of exports of goods.
 - 13% of EU biopharmaceutical production
 - 47% of UK medicine exports
- **GSK, MSD, Piramal, Aesica, Bristol Myers Squibb and Sanofi Aventis** have pharmaceutical manufacturing facilities and capabilities across the North.



Biologics Manufacturing

- One of the leading biologics manufacturing clusters in Europe with facilities that include **Eli Lilly, Actavis, Fujifilm Diosynth Biotechnologies Medimmune and Seqirus.** The North is home to £38m National Biologics Manufacturing Centre and will host the £20m CPI Biologics Factory of the Future.



The North exports over £8.1bn of medicinal and pharmaceutical products per year.

Ecosystem: Next Generation Medical Technology

The Northern Powerhouse is home to world leading Medtech capabilities

Medical Technology

- The North has one of the largest clusters of orthopaedic, medical device & surgical companies in the UK. These clusters are home to medical manufacturing and device companies including **Smith and Nephew, Waters, Surgical Innovations, Reckitt Benckiser, JRI Orthopaedics, Swann Morton and DePuy Synthes**. Expertise available across orthopaedic devices, wound care, instruments and laboratory equipment.
- The Northern Powerhouse also boasts two NIHR Diagnostic Evidence Cooperatives in Leeds and Newcastle which help generate information on the clinical and cost-effectiveness of in vitro diagnostic devices which are important in helping to improve the way diseases are diagnosed.
- The Institute of Medical and Biological Engineering (IMBE) in Leeds is one of the world's top ten bio-engineering research institutes. Awarded the Queens Anniversary Prize. IMBE leads five major national research centres with the common theme *50 active years after 50®*.
- The Leeds Innovation and Knowledge Centre (IKC) in Medical Technologies has developed a successful platform of innovation and partnership with over 66 companies to accelerate the translation of research through to market.



The University of Sheffield Medical Advanced Manufacturing Research Centre (MAMRC) provides engineering, design and prototyping services to industrial clients.

MRC Arthritis UK Centre for Integrative Musculoskeletal Ageing across Liverpool, Newcastle and Sheffield.



WELMEC Centre of Excellence in Medical Engineering in Leeds a £13m investment by the Wellcome Trust & EPSRC.

EPSRC Centre for Innovative Manufacturing in Medical Devices – led by Leeds with Bradford, Newcastle & Sheffield.

Ecosystem: Health Research Themes

- The Health Science Ecosystem in the Northern Powerhouse has deep expertise in Precision Medicine, Healthy Ageing and Population Health. This is underpinned by world leading clinical trials infrastructure, health economics and health informatics and eHealth.

Digital Health approaches and technologies are deployed across all research themes.

Research Themes

Precision Medicine

- Two Precision Medicine Catapults
- Four Genomic England Centres
- Two NIHR Diagnostic Evidence Cooperatives (Leeds / Newcastle)
- Two MRC / EPSRC Pathology Nodes
- New Medicines Technology Catapult
- Two MRC Single Cell Genomic Centres
- The UK AMR Centre at Alderley Park
- Cancer Research UK Manchester Institute
- Cancer Research UK Leeds Centre
- Cancer Research UK Newcastle Centre
- Astbury Centre (Leeds)

Healthy Ageing

- National Centre for Ageing Science & Innovation in Newcastle
- MRC Arthritis UK Center for Integrative Musculoskeletal Ageing
- NIHR Newcastle Biomedical Research Centre in Ageing & Chronic Disease
- Alder Hey Children's Hospital
- York Neuroimaging Centre (YNIC)
- Centre for Hyperpolarisation in Magnetic Resonance (CHyM)
- SITraN in Sheffield
- Centre for Ageing Research (Lancaster)

Population / Digital Health

- NIHR funded centres for Public Health research
- ESRC Centre for Translational Research in Public Health
- Institute of Infection & Global Health, University of Liverpool
- Well North
- Three NHS England Test Beds
- Liverpool John Moores University's Research Institute for Sport and Exercise Sciences (RISES)
- CATCH in Sheffield

CLINICAL TRIALS & Health Economics

- NIHR Clinical Research Networks
- Several Clinical Research Facilities, three in Manchester alone
- MRC Network of Hubs for Trials Methodology Research
- Sheffield School for Health Related Research
- York Health Economics

eHEALTH & DATA ANALYTICS

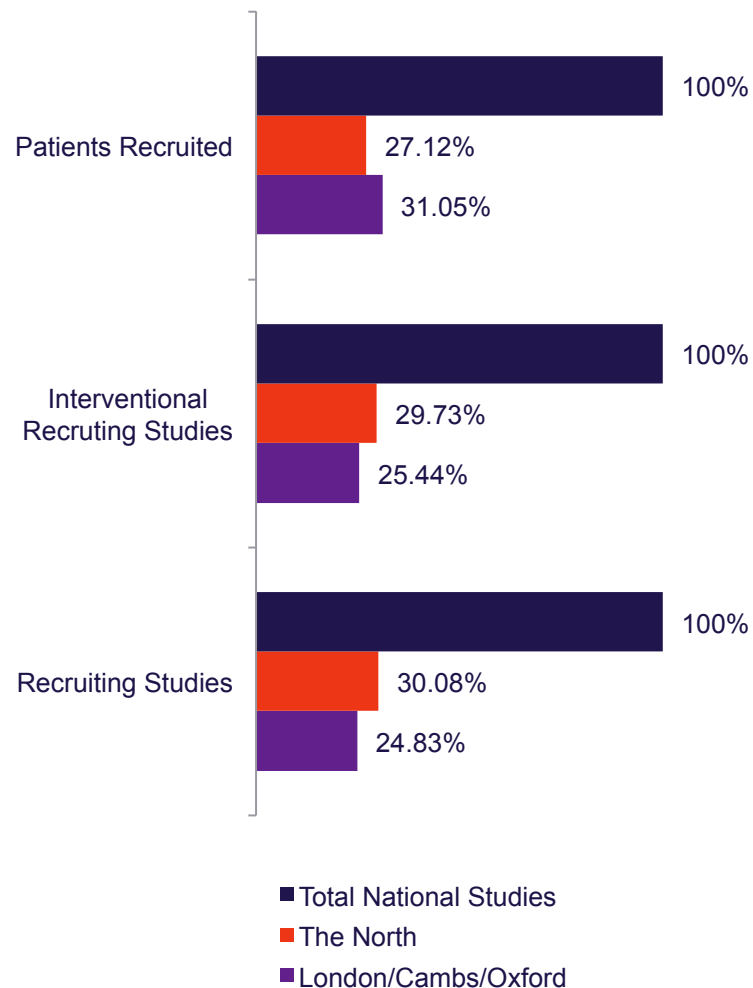
- NWeHealth FARSITE trials recruitment tool
- MRC eHerc, Farr Institute, NorthWest eHealth at Manchester
- MRC Medical Bioinformatics Centre in Leeds
- EPSRC Postgraduate Centre for Cloud Computing in Newcastle
- Sci-Tech Daresbury and the Hartree Centre
- eHealth SME cluster (Liverpool City Region)
- Connected Health Cities
- CHICAS, School of Health and Medicine.

Ecosystem: Leading Clinical Trials in the UK

- An E-enabled population and records which can enhance execution of real time validation and clinical studies and provide real time data for a significant proportion of the population.
 - Underpinned by data science expertise through the MRC Farr/HeRC, the EPSRC Cloud computing institute and the MRC Medical Bioinformatics Centre.
- The North covers a patient population that accounts for **37% of the UK's clinical trial participants**, the largest share in the country.
- **Three of the top five** recruiting NHS Trusts for clinical trials in 2013/14 were in the North.
- **Manchester** is the leading centre for industry sponsored clinical trials in the UK.
- In both recruiting studies and interventional **studies the North delivered more than London, Cambridge and Oxford combined.**



2014/15 Clinical Trial Data



Ecosystem: Excellence in Economics Research

The Northern Powerhouse is home to a number of internationally recognised health economic centres providing international investors with access to critical expertise in understating the value and impact of a novel technology on the UK NHS and international health services.

York's Centre for Health Economics (CHE) and the York Health Economics Consortium

- York Economics is a founding member of the Minerva Network, a health economic collaboration established to ensure that applied research in health economics is made relevant to international markets.



Sheffield School of Health and Related Research (ScHARR)

- Provides more NICE appraisals than any other unit. Ranked #2 for impact of research in Public Health, Health Services and Primary Care ahead of Oxford, Imperial and Cambridge.



The
University
Of
Sheffield.

Other Groups

- Manchester Centre for Health Economics**, the **Leeds Health Economics team**, the **Liverpool Health Economics Group** and the **Health Economics at Lancaster** teams demonstrates that the North has the health economics critical mass needed to support any inward investment opportunity seeking access to the UK and European markets.



Ecosystem: Adoption, Uptake & Devolution

Four Academic Health Science Networks (AHSNs) of the North

- The AHSNs connect all partners across sectors: NHS and academic organisations, local authorities, the third sector and industry.
- The AHSNs are catalysts that work to create the right conditions to facilitate change across whole health and social care economies, improving outcomes for patients.
- AHSNs spread innovation at pace and scale to achieve twin goals of improving health and generating economic growth.
- The Northern AHSNs are making a significant impact supporting inward investors by acting as a catalyst to:
 - Diffuse innovation
 - Improving patient safety
 - Optimise medicine use
 - Improve quality and reduce variation
 - Put health research into practice

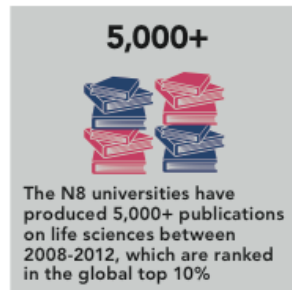
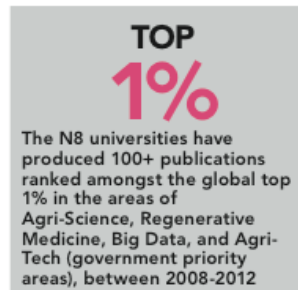
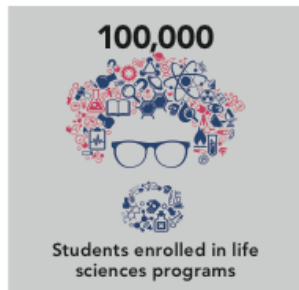
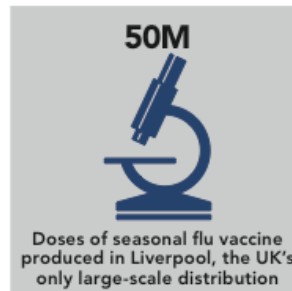
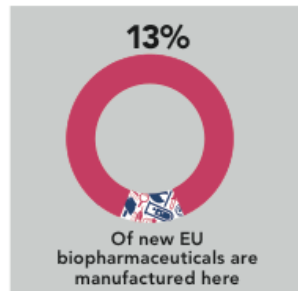
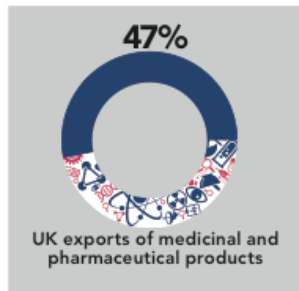
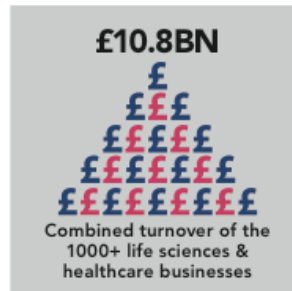
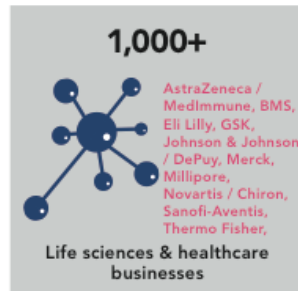


Greater Manchester has been Devolved its £6 billion per annum Health and Social Care budget

- A single joint commissioning board will provide one decision point for adoption of innovations across a population of nearly three million people, ten hospitals and primary care infrastructure.
- Coordinated working across 12 Clinical Commissioning Groups and the linking of Health and social care which will align incentives and budget for adopting innovation across the spectrum of care.
- Greater Manchester has a 'joined up' network of gateway organisations such as Greater Manchester AHSN, TrusTech and NICE that can work with business to help them port innovation to patients.



Thriving Business Environment in the Powerhouse



From basic science to life sciences R&D to manufacturing new medicines the Northern Powerhouse is open for business.

To find out how your business can benefit by working within the UK's Northern Powerhouse please contact the UKTI Life Science Organisation: Iso@ukti.gsi.gov.uk

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